REMARKS

Reconsideration and withdrawal of the rejections to the claims is respectfully requested in view of the amendments and remarks which follow.

Claims 1-5 are amended to more clearly define the claimed invention. New claim 48-51 are added and therefore are pending in the present application. Support for these new claims can be found in the specification and claims as originally filed. For example, support for new claims 48-53 can found in the specification on pages 13 to 21 and support for new claim 51 can be found in Example 50 on page 55. Accordingly, claims 1-5, 15, 16, 25-28, 31, 32, 38-42 and 48-53 are pending in this application.

It is respectfully submitted that the present amendment presents no new issues or new matter and places this case in condition for allowance.

I. The Rejection of Claims 1-5, 15-16, 25-28, 31-32, 38-42 under 35 U.S.C. 112, first paragraph

Claims 1-5, 15-16, 25-28, 31-32, and 38-42 were rejected under 35 U.S.C. 112, first paragraph, because the specification allegedly does not reasonably provide enablement for all of the compounds encompassed in formula (I) in claim 1. According to the Office Action, the specification lacks direction and guidance for placing all of the alleged products in the possession of the public without inviting more than routine experimentation. (Office Action, pages 2-3.) This rejection is respectfully traversed.

It is respectfully asserted that the specification fully enables one skilled in the art to practice the full scope of the claimed invention. The specification fully describes the various types of functional groups that can be used for the various A^1, A^2, Z, Q, Ar, M, Y and R's in the different positions of the compounds of formula I. The specification defines these functional groups, including representative example for each of these groups, on pages 13 through 21. For example, the term C_{1-12}-alkyl is defined as a branched or straight or cyclic hydrocarbon group having from 1 to 12 carbon atoms, and includes a discussion of typical C_{1-12}-alkyl groups as including, but not limited to, methyl, ethyl, n-propyl, isopropyl, butyl, iso-butyl, sec-butyl, tert-butyl, pentyl, hexyl, and the like, and cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cycloheptyl, cyclooctyl, and the like. (Specification, page 13, line 33, to page 14, line 2.) No

special definitions are included in the specification and all terms are defined in such a way that they have their conventional meaning as used by one of ordinary skill in the chemical arts.

Further, the specification includes numerous synthesis examples on pages 25 to 27, and 43 to 60, including both generic and specific chemical pathways, and general synthesis schemes for starting materials. These starting materials, intermediates and chemical pathways provide clear guidance to one skilled in the art, such that the skilled practitioner can make and use the full scope of the invention as claimed, by simply making the required substitutions for the A^1, A^2, Z, Q, Ar, M, Y and R's groups as described in the claims and specification. These starting and intermediate compounds are then used in the disclosed synthetic methods to produce the numerous compounds in the examples which follow on pages 34 to 60.

Further, one skilled in the art could easily follow the reaction pathways on pages 25 to 27, and produce compounds wherein A^1, A^2, Z, Q, Ar, M, Y and R's are other than groups described in the Examples in pages 34 to 60. The synthetic examples discloses reaction conditions, reagents and solvents, and process steps, including alternative purification methods, which are of the type routinely adapted by one skilled in the art and could be adapted without undue experimentation to make a variety of compounds within the scope of the claimed invention based on the guidance provided in the specification and the practitioner's knowledge of the chemical arts.

The specification also includes guidance to one skilled in the art to use the compounds in various pharmaceutical compositions. On pages 28 to 34, the specification provides guidance for various components that can be used in formulation a variety of pharmaceutical compositions, including a discussion of the use of the claimed compounds with other pharmaceutical compounds for the treatment of diseases associated with PPARαandγ.

The specification also includes guidance as to how one skilled in the art would test the effectiveness of the compounds as inhibitors of PPARα andγ. On pages 27 to 28 of the specification, guidance is provided as to how one skilled in the art would test the ability of the compounds produced to interact with the PPARαandγ. Detailed instructions as to the assays for testing these compounds are provided. The assay procedures described in the specification include the materials required for performing the assays (source materials, buffers, reagents, filters, etc.), testing steps and conditions, suggested equipment, and a discussion of the analysis of

the test results. In addition, those disease that are mediated by PPARα and γ are discussed in the specification on pages 1 to 3, and page 23, line 19 to 25, line 11.

Thus, the full scope of the pending claims are supported by the specification, in combination with the knowledge of one skilled in the art, such that sufficient guidance and direction are provided and no undue experimentation is needed to practice the full scope of the invention as claimed. Only routine experimentation related to chemical synthesis or biological testing disclosed in the specification or known in the art would be required to make and use the invention as claimed.

In view of the foregoing, it is respectfully submitted that the teaching in the application, in combination with the knowledge of one skilled in the art, fully enables one skilled in the art to make and use the full scope of the claimed invention without undue experimentation. Accordingly, Applicants respectfully request reconsideration and withdrawal of this rejection under 35 U.S.C. § 112, first paragraph.

II. The Rejection of Claims 1-5, 15-16, 25-28, 31-32, 38-42 under 35 U.S.C. 112, second paragraph

Claims 1-5, 15-16, 25-28, 31-32, and 38-42 were rejected under 35 U.S.C. 112, second paragraph, for allegedly being indefinite because of the terms: "5-6 membered cyclic ring", "heterocyclyl", "heteroaryl", "heteroarylalkyl", "heteroaryloxy", "heteroarylalkoxy", "arylene" or "heterarylene". This rejection is respectfully traversed.

It is respectfully asserted that the above referenced terms are definite and provide a clear and exact meaning to one skilled in the art. However, to be fully responsive to the Office Action and in an effort to advance prosecution of this application, the claims are amended to more clearly define the term "5-6 membered cyclic ring" used to define A^1 and A^2. The term has been amended to include the definition that "a saturated, unsaturated or aromatic 5-6 membered cyclic ring system containing one or more carbon atoms and optionally from one to four heteratoms selected from N, O or S." By this amendment, the types of ring structures including the number of ring atoms and the number and type of heteroatoms that are included in these ring structures are added to the claims. Support for this amendment can be found in the specification on page 20, line 1, to page 21, line 9, as originally filed.

Additionally, the claims are amended to include definitions for the terms heterocyclyl, heteroaryi, heteroarylalkyi, heteroaryloxy, heteroarylalkoxy, arylene, and heterarylene. Support for these amendments can be found in the specification beginning on page 18, line 1, to page 21, line 15.

These definitions have been added to merely clarify that terms as originally used in the claims and these amendments are not an indication of the surrender of any subject matter. These amendments are made in an earnest effort to advance prosecution of this application and are made without any intention of creating estoppel with respect to equivalents.

Applicants respectfully assert that the rejection based on the above terms in the claims is improper, since the terms as recited previously and in the amended claims describe the invention in such full, clear, concise, and exact terms as to enable one skilled in the art to make and use the same, and particularly points out and distinctly claims the subject matter which applicants regard as their invention. It is urged that the terms convey to the skilled artisan the scope of the patent protection sought when it is read in light of the specification. First, the terms define the size and shape of the ring systems. As can be seen from the claims, specific ring sizes are included in these definitions. The specification, on pages 18 to 25, defines the number of ring atoms for both aliphatic heterocyclic and heteroaromatic radicals, and provide examples of possible ring systems. Second, the language of the claims and the specification limit the types of heteroatoms which are included in the heterocyclic ring, for example, N, O, and S.

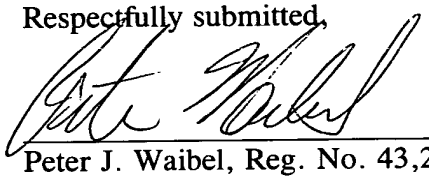
From the manner in which the term is defined in the claims, it is clear that not all heterocyclic rings are claimed. For example, claim 1 defines a heterocyclyl radical as "a saturated or unsaturated nonaromatic group having 5 or 6 ring atoms containing one to four carbon atoms and one to four heteroatoms selected from N, O, and S." Upon reading this language, the skilled practitioner would know which heterocyclic compounds are claimed. The practitioner would simple form a list of heterocyclic rings making the required substitutions.

For the foregoing reasons, Applicants submit that the amended claims overcome the rejections under 35 U.S.C. § 112, second paragraph. Applicants respectfully request reconsideration and withdrawal of this rejection.

III. Conclusion

In view of the above, it is respectfully submitted that all of the pending claims are in condition for allowance. Early action to that end is respectfully requested. The Examiner is hereby invited to contact the undersigned by telephone if there are any questions concerning this amendment or application.

Respectfully submitted,



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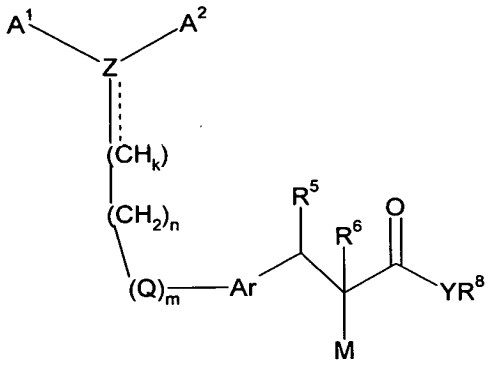
VERSION WITH MARKINGS TO SHOW CHANGES MADE

1. (Amended Twice) A compound of formula (I)



(I)

wherein A^1 and A^2 are independently of each other a saturated, unsaturated or aromatic 5-6 membered cyclic ring system containing one or more carbon atoms and optionally from one to four heteroatoms selected from N, O or S, which is optionally substituted with one or more halogen, perhalomethyl, hydroxy, nitro, cyano, formyl, or C_{1-12}-alkyl, (C_{3-6}-cycloalkyl)C_{1-6}-alkyl, C_{4-12}-alkenynyl, C_{2-12}-alkenyl, C_{2-12}-alkynyl, C_{1-12}-alkoxy, aryl, aryloxy, arylalkyl, arylalkoxy, heterocyclyl, heteroaryl, heteroarylalkyl, heteroaryloxy, heteroarylalkoxy, acyl, acyloxy, hydroxyC_{1-12}-alkyl, amino, acylamino, C_{1-12}-alkyl-amino, C_{1-6}-dialkylamino, arylamino, arylalkylamino, aminoC_{1-12}-alkyl, C_{1-12}-alkoxycarbonyl, alkylaminocarbonyl, aryloxycarbonyl, arylalkoxycarbonyl, C_{1-12}-alkoxyC_{1-12}-alkyl, aryloxyC_{1-12}-alkyl, arylalkoxyC_{1-12}-alkyl, arylthio, C_{1-12}-alkylthio, thioC_{1-12}-alkyl, C_{1-12}-alkoxycarbonylamino, aryloxycarbonylamino, arylalkoxycarbonylamino, -COR^1, or -SO_2R^2, wherein R^1 and R^2 independently of each other are selected from hydroxy, halogen, perhalomethyl, C_{1-6}-alkoxy or amino optionally substituted with one or more C_{1-6}-alkyl, perhalomethyl or aryl; optionally substituted with one or more halogen, perhalomethyl, hydroxy, nitro or cyano;

Z is C or CR^3, wherein R^3 is hydrogen, halogen, perhalomethyl, C_{1-12}-alkyl, C_{4-12}-alkenynyl, C_{2-12}-alkenyl, C_{2-12}-alkynyl, C_{1-12}-alkoxy, aryloxy, arylalkoxy,

heteroaryloxy, heteroarylalkoxy, acyl, acyloxy, hydroxyC_{1-12}-alkyl, C_{1-12}-alkoxyC_{1-12}-alkyl, aryloxyC_{1-12}-alkyl, arylalkoxyC_{1-12}-alkyl, thioC_{1-12}-alkyl, $-COR^4$, or $-SO_2R^{11}$, wherein R^4 and R^{11} independently of each other are selected from hydroxy, halogen, perhalomethyl, C_{1-6}-alkoxy or amino optionally substituted with one or more C_{1-6}-alkyl, perhalomethyl or aryl optionally substituted with one or more halogen, perhalomethyl, hydroxy, nitro or cyano;

Q is O or S;

------ represents a single bond or a double bond;

Ar is arylene or heteroarylene;

R^5 is hydrogen;

R^6 is hydrogen;

M is OR^7, where R^7 is hydrogen, C_{1-12}-alkyl, C_{4-12}-alkenynyl, C_{2-12}-alkenyl, C_{2-12}-alkynyl, aryl, arylalkyl, C_{1-12}-alkoxyC_{1-12}-alkyl, C_{1-12}-alkoxycarbonyl, aryloxycarbonyl, C_{1-12}-alkylaminocarbonyl, arylaminocarbonyl, acyl, heterocyclyl, heteroaryl or heteroarylalkyl groups optionally substituted with one or more halogen, perhalomethyl, hydroxy, nitro or cyano or M is $COYR^8$;

R^8 is hydrogen, C_{1-12}alkyl, C_{4-12}-alkenynyl, C_{2-12}-alkenyl, C_{2-12}-alkynyl;

Y is oxygen;

k is an integer from 1 to 2, n and m are 1;

wherein heterocyclyl is a saturated or unsaturated nonaromatic group having 5 or 6 ring atoms containing one to four carbon atoms and one to four heteroatoms selected from N, O or S;
heteroaryl is a 5 to 6 membered monocyclic or a 9 to 10 membered bicyclic aromatic system containing one or more heteroatoms selected from N, O or S;
heteroarylalkyl is a straight or branched C_{1-6} alkyl group further substituted with a heteroaryl group;
heteroaryloxy is a heteroaryl group linked to an oxygen atom;
heteroarylalkoxy is a heteroarylalkyl group linked to an oxygen atom;
arylene is a divalent aromatic ring; and
heteroarylene is a divalent heteroaryl group;.

or a salt thereof with a pharmaceutically acceptable acid or base, or any optical isomer or mixture of optical isomers, or any tautomeric forms.

2. (Amended Twice) The compound of claim 1, wherein A^1 and A^2 are independently of each other a saturated, unsaturated or aromatic 5-6 membered cyclic ring system containing one or more carbon atoms and optionally from one to four heteroatoms selected from N, O or S, which is optionally substituted with one or more halogen, perhalomethyl, hydroxy, C_{1-6}-alkyl, (C_{3-6}-cycloalkyl)C_{1-6}-alkyl, C_{4-6}-alkenynyl, C_{2-6}-alkenyl, C_{2-6}-alkynyl, C_{1-6}-alkoxy, aryl, aryloxy, arylalkyl, arylalkoxy, heterocyclyl, heteroaryl, heteroarylalkyl, heteroaryloxy, heteroarylalkoxy, acyl, hydroxyC_{1-6}-alkyl, C_{1-6}-alkyl-amino, C_{1-6}-dialkylamino, arylamino, arylalkylamino, aminoC_{1-6}-alkyl, C_{1-6}-alkoxy-carbonyl, alkylaminocarbonyl, aryloxycarbonyl, arylalkoxycarbonyl, C_{1-6}-alkoxyC_{1-6}-alkyl, aryloxyC_{1-6}-alkyl, or arylalkoxyC_{1-6}-alkyl.

3. (Amended Twice) The compound of claim 1, wherein A^1 and A^2 are independently of each other a saturated, unsaturated or aromatic 5-6 membered cyclic ring system containing one or more carbon atoms and optionally from one to four heteroatoms selected from N, O or S, which is optionally substituted with one or more halogen, perhalomethyl, hydroxy, C_{1-6}-alkyl, (C_{3-6}-cycloalkyl)C_{1-6}-alkyl, C_{4-6}-alkenynyl, C_{2-6}-alkenyl, C_{2-6}-alkynyl, C_{1-6}-alkoxy, aryl, aryloxy,

arylalkyl, arylalkoxy, heterocyclyl, heteroaryl, heteroarylalkyl, heteroaryloxy, heteroarylalkoxy, acyl, hydroxyC_{1-6}-alkyl, C_{1-6}-alkyl-amino, C_{1-6}-dialkylamino, arylamino, arylalkylamino, aminoC_{1-6}-alkyl, C_{1-6}-alkoxyC_{1-6}-alkyl, aryloxyC_{1-6}-alkyl, or arylalkoxyC_{1-6}-alkyl.

4. (Amended Twice) The compound of claim 1, wherein A^1 and A^2 are independently of each other are a saturated, unsaturated or aromatic 5-6 membered cyclic ring system containing one or more carbon atoms and optionally from one to four heteroatoms selected from N, O or S, which is optionally substituted with one or more halogen, C_{1-6}-alkyl, C_{1-6}-alkoxy or aryl.

5. (Amended Twice) The compound of claim 1, wherein A^1 and A^2 are independently of each other a saturated, unsaturated or aromatic 5-6 membered cyclic ring system containing one or more carbon atoms and optionally from one to four heteroatoms selected from N, O or S, which is optionally substituted with one or more halogen, C_{1-6}-alkyl, C_{1-6}-alkoxy, or aryl.